

Chapter 6

6.1 The measures of the angles of a triangle are in the extended ratio given. Find the measures of the angles of the triangle.

1. 1:3:5

20, 60, 100

2. 1:5:6

15, 75, 90

3. 2:3:5

36, 54, 90

4. 5:6:9

45, 54, 81

6.1 Solve the proportion.

5. $\frac{x}{14} = \frac{6}{21}$ 4

6. $\frac{15}{y} = \frac{20}{4}$ 3

7. $\frac{3}{2z+1} = \frac{1}{7}$ 10

8. $\frac{a-3}{2} = \frac{2a-1}{6}$ 8

9. $\frac{6}{3} = \frac{x+8}{-1}$ -10

10. $\frac{x+6}{3} = \frac{x-5}{2}$ 27

11. $\frac{x-2}{4} = \frac{x+10}{10}$ 10

12. $\frac{12}{8} = \frac{5+t}{t-3}$ 19

6.1 Find the geometric mean of the two numbers.

13. 4 and 9 6

14. 3 and 48 12

15. 9 and 16 12

16. 7 and 11 $\sqrt{77}$

6.2 Copy and complete the statement.

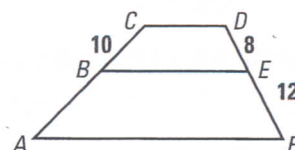
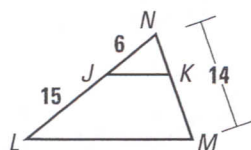
17. If $\frac{7}{x} = \frac{9}{y}$, then $\frac{x}{7} = \frac{y}{9}$ $\frac{y}{9}$

18. If $\frac{2}{8} = \frac{1}{x}$, then $\frac{8+2}{2} = \frac{x+1}{1}$ $\frac{x+1}{1}$

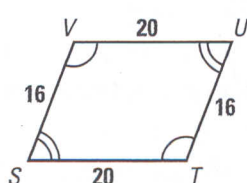
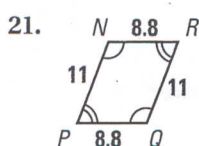
6.2 Use the diagram and the given information to find the unknown length.

19. Given $\frac{NJ}{NK} = \frac{NL}{NM}$, find NK. 4

20. Given $\frac{CB}{DE} = \frac{BA}{EF}$, find CA. 25

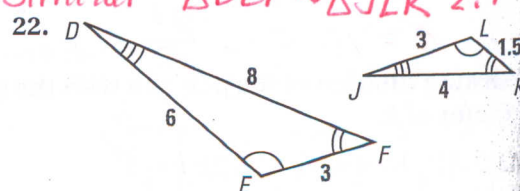


6.3 Determine whether the polygons are similar. If they are, write a similarity statement and find the scale factor.



Similar RQPN ~ STUV 11:20

Similar $\triangle DEF \sim \triangle JLK$ 2:1



6.3 In the diagram, $\triangle PQR \sim \triangle LMN$.

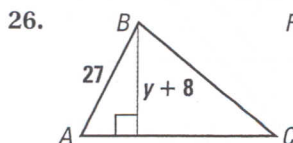
23. Find the scale factor of $\triangle PQR$ to $\triangle LMN$. 3:1

24. Find the values of x, y, and z. 67.4, 39, 5

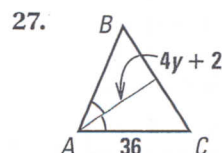
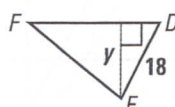
25. Find the perimeter of each triangle.

$\triangle PQR$: 90 $\triangle LMN$: 30

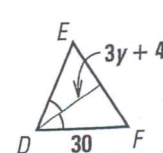
6.3 $\triangle ABC \sim \triangle DEF$. Identify the blue special segment and find the value of y.



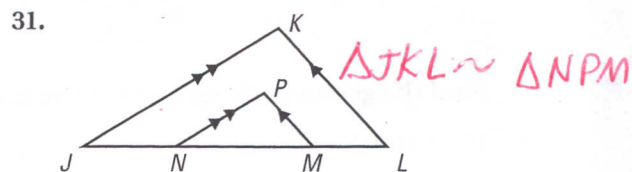
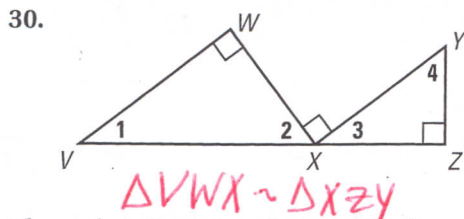
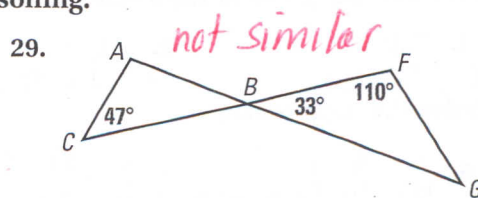
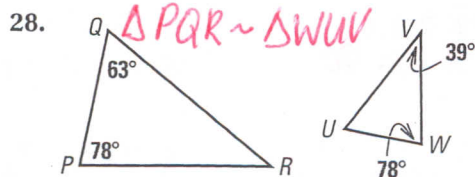
altitude 16



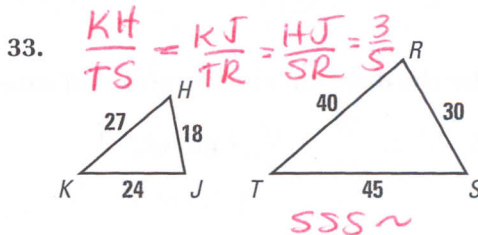
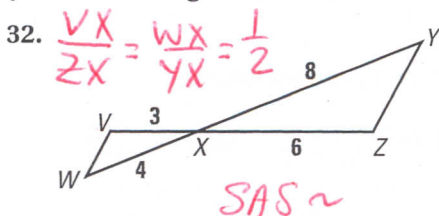
4 bisector, 7



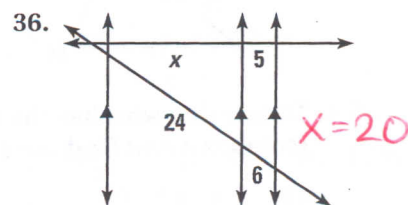
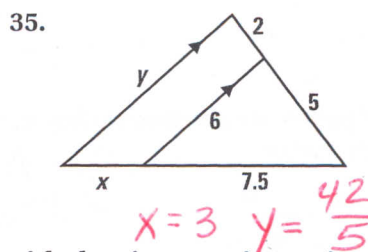
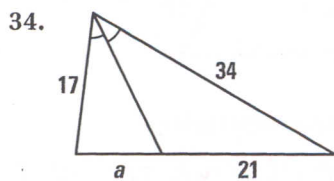
6.4 In Exercises 28–31, determine whether the triangles are similar. If they are, write a similarity statement. Explain your reasoning.



6.5 Show that the triangles are similar and write a similarity statement. Explain your reasoning.



6.6 Use the diagram to find the value of each variable.



$a = 10.5 \approx \frac{21}{2}$

$x = 3, y = \frac{42}{5}$

6.7 Draw a dilation of the polygon with the given vertices using the given scale factor of k .

37. $A(1, 1), B(4, 1), C(1, 2); k = 3$

38. $A(2, 2), B(-2, 2), C(-1, -1), D(2, -1); k = 5$

39. $A(2, 2), B(8, 2), C(2, 6); k = \frac{1}{2}$

40. $A(3, -6), B(6, -6), C(6, 9), D(-3, 9); k = \frac{1}{3}$

6.7 Determine whether the dilation from Figure A to Figure B is a *reduction* or an *enlargement*. Then find its scale factor.

